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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,806	12/24/2003	Toshiaki Yoshihara	032148	1723
38834 7590 12/21/2009 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036				
EXAMINER				
DINH, DUC Q				
ART UNIT		PAPER NUMBER		
2629				
NOTIFICATION DATE		DELIVERY MODE		
12/21/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentmail@whda.com

# Office Action Summary

**Application No.**

10/743,806

**Applicant(s)**

YOSHIHARA ET AL.

**Examiner**

DUC Q. DINH

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.  
4a) Of the above claim(s) 13 and 15 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 3-12 and 14 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date 09/03/09  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/15/09 has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 recites the limitation "the incident regions" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-5, 7, 9, 10 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Hong (U.S Patent No. 7,365,729), hereinafter Lim.

In reference to claim 1, Hong discloses a field-sequential type display device (see Fig. 6) for performing a display by synchronizing successive switching of lights of a only three colors which consist of red, green and blue to be incident on a display element with light control in said display element based on display data of each color corresponding to an image to be displayed, comprising:

a detecting unit (120 of Fig. 6 and ST 1 of Fig. 14) for detecting a maximum grayscale level of the display data for each color (the maximum grayscale level of each color is detected to obtain the average value  $R_a$ ,  $G_a$  and  $B_a$  see col. 8, lines 47-55); and the grey scale level of the maximum brightness being variable for each of the subframes of the colors through out performing the display, (the maximum of brightness for each of the red ( $R_a$ ) and green ( $G_a$ ) and blue ( $B_a$ ) having different intensity levels, i.e. being variable, according to the input image data (each input image has different gray scale levels for the R, G and B color, the grayscale level of maximum brightness of the input display data of each color is variable for each image throughout displaying; and the detecting unit detecting the max level for each gray scale level for each data color to calculate the average level for each subframe;

an adjusting unit (120 of Fig. 7 and ST 2 of Fig. 14) for adjusting, individually independently for each color, an intensity of light incident on said display element and a light control variable in said display element, based on the respective grayscale level of each color detected in a detection result for each of said detecting unit. (see Fig. 14)

In reference to claim 3, Hong discloses wherein said detecting unit detects a grayscale level of maximum brightness of the display data in a predetermined period,

and, when obtaining the maximum brightness, said adjusting unit adjusts the light control variable in said display element so as to have maximum transmittance or reflectance of incident light on said display element and adjusts the intensity of incident light according to the adjusted light control variable (col. 11, lines 26-58).

In reference to claim 4, Hong discloses that when obtaining brightness of a grayscale level other than the grayscale level of maximum brightness, said adjusting unit adjusts the light control variable in said display element. (see Fig. 14)

In reference to claim 5, Hong discloses wherein an intensity of light incident on said display element after adjusting the intensity of light and the light control variable by said adjusting unit is smaller than an intensity of light incident on said display element without performing the adjustments (col. 12, lines 5-38).

In reference to claims 7, Hong discloses wherein said display element is a liquid crystal display element. (col. 5, lines 60-67)

In reference to claim 9, Hong discloses the display element is a digital mirror device. (col. 12, lines 38-45)

In reference to claim 10, Lim discloses wherein the lights of a plurality of colors to be incident on said display element are red light, green light, and blue light (see Fig. 14, ST2).

Claim 14 is a method claim of apparatus claim 1, and therefore, is rejected as the same reason as set forth in the rejection of claim 1.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hong in view of Lim et al. (U.S Patent No. 7,053,880).

In reference to claim 6, Hong does not disclose an incident region of light on the display is divided, and the detection of gray scale level by the detecting unit and the adjustments of the display intensity of light and the light control variable by the adjusting unit is performed for each of the incident regions. In the same field of endeavor, Lim discloses an incident region of light to be incident on said display element is divided, and the detection of a grayscale level by said detecting unit and the adjustments of the intensity of light and the light control variable by said adjusting unit are performed for each of the incident regions (see Fig. 10, col. 41-61).

It would have been obvious for one of ordinary skill in the art at the time of the invention to learn the teaching of divide the incident region of light in the device of Hong as taught by Lim because it would provide a color image display device that compensates for low response time of a liquid crystal and accomplish fast driving of the field sequential liquid crystal display device. (col. 5, lines 35-41)

In reference to claim 11 and 12, Lim discloses a converting unit for converting red, green and blue display data into red, green, blue and white display data, wherein

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said detecting unit detects grayscale levels of display data obtained by said converting unit (input values of each sub-frame are converted by the image signal processor. That is, when the average luminance of Ra, Ga, Ba greater than the grey level 128, the light source corresponding to the component having a larger average luminance with be turned on at the fourth sub-frame; see col. 8, lines 49-65).

7. Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hong and Lim in view of Sato et al. (U.S Patent No. 7,030,848), hereinafter Sato.

In reference to claim 8, the combination of Hong and Lim does not disclose a liquid crystal material used in said liquid crystal display element has spontaneous polarization. Sato discloses a liquid crystal display using liquid crystal display material used in the liquid crystal display element having spontaneous polarization (col. 42, lines 45-49).

It would have been obvious for one of ordinary skill in the art at the time of the invention use the liquid crystal material display element having spontaneous polarization in the combination of Hong and Lim as taught by Sato because it would ensure sufficient light emitting time and achieve more satisfactory display (col. 42, lines 52-55).

***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 3-8, 10-12 and 14 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q. DINH whose telephone number is (571)272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMR A. AWAD can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duc Q Dinh/

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